

ARTICLES

CONFRONTING DISPROPORTIONATE IMPACTS AND SYSTEMIC RACISM IN ENVIRONMENTAL POLICY

by Charles Lee

A true pioneer in the arena of environmental justice, Charles Lee was principal author of the landmark report Toxic Wastes and Race in the United States, organized the First National People of Color Environmental Leadership Summit, and helped spearhead the emergence of federal environmental justice policy. He is currently the Senior Policy Advisor for Environmental Justice at the U.S. Environmental Protection Agency.

SUMMARY

Understanding and operationalizing the concept of disproportionate impacts are critical to the next generation of environmental justice (EJ) practice. This Article charts a pathway to better defining, articulating, and analyzing disproportionate impacts in a manner that is empirically based, analytically rigorous, and has an evidentiary link to systemic racism and the roots of the inequitable distribution of environmental burdens and benefits. It offers a framework for integrating these concepts into environmental decisionmaking, which can help overcome the current stagnation in EJ practice and address the quarter-century old conundrum created by EJ Executive Order No. 12898's unclarity on the subject. Finally, the Article links future EJ practice to the national conversation about systemic racism, and discusses how conditions for making progress have never been better since the author began to work on an issue that did not even have a name some 40 years ago.

After more than 25 years, the practice of environmental justice (EJ) within government agencies¹ in the United States has finally evolved the science and policy tools to confront a conundrum that has plagued it since President William J. Clinton issued Executive Order No. 12898 in 1994.² What lies at the heart of this transfor-

mative development? It is the ability to define, articulate, visualize, and apply the concept of disproportionate environmental and/or public health impacts (disproportionate impacts) based on empirical data in the context of programmatic decisionmaking.³

Because of this critical development, we can begin to systematically identify, characterize, integrate, and address disproportionate impacts. Moreover, we can begin to transition toward a second-generation understanding of EJ practice.⁴ This Article will speak to the foundational role of the disproportionate impacts concept for integrating

Author's Note: The ideas put forth in this Article are the author's own. They do not represent the views of the U.S. Environmental Protection Agency or any agency in the federal government, and no such representation should be inferred. The author wishes to thank the many people whose work made the writing of this Article possible.

1. For purposes of this Article, "EJ practice" is defined as the constellation of work that advances EJ within public policy and government programs. It represents the work of persons both inside and outside of government. Experience has shown that truly transformative EJ progress within government results from concerted action by communities, academia, government, and others. See Charles Lee, *A Game Changer in the Making? Lessons From States Advancing Environmental Justice Through Mapping and Cumulative Impact Strategies*, 50 ELR 10203 (Mar. 2020), available at <https://www.eli.org/sites/default/files/docs/50.10203.pdf>.
2. Exec. Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7629 (Feb. 16, 1994).

3. It involves the capacity to identify, quantify, and map the concept in an empirically based manner. This will be discussed in Part II.
4. I first articulated the idea of a second generation of EJ practice by examining the work of Harold Mitchell in Spartanburg, South Carolina. This was due primarily to the systematic way in which Mitchell developed a vision and plan for the area's community revitalization efforts, thus informing my efforts to develop a community-driven EJ collaborative problem-solving model. Maturing to a second generation of EJ practice in the regulatory arena has proven to be more difficult, and is just beginning to take place. See Charles Lee, *Collaborative Models to Achieve Environmental Justice and Healthy Communities*, in POWER, JUSTICE, AND THE ENVIRONMENT: A CRITICAL APPRAISAL OF THE ENVIRONMENTAL JUSTICE MOVEMENT 219 (David Pellow & Robert Brulle eds., MIT Press 2005).

EJ in government programs, and the imperative to do so within the context of the current national reckoning with systemic racism.

Perhaps the most important phrase within Executive Order No. 12898, directed at 17 federal agencies and White House offices, is the mandate that each federal agency shall identify and address, as appropriate, the “disproportionately high and adverse human health or environmental effects” of its programs on minority populations and low-income populations.⁵ However, during the quarter-century since the Executive Order became the primary policy instrument for driving integration of EJ considerations into federal agency policies, programs, and activities, all federal agencies have largely avoided use of the term “disproportionate impacts.” It appears intermittently in agency EJ descriptions—almost as if one had to meet an unpleasant obligation. The same is true in nearly each of the more than 40 states with EJ statutes, policies, or programs.⁶

There are many reasons for this profound and critical omission. Some of them are systemic and deeply rooted. Some are related to accepted social norms and behaviors enforced by peer pressure. Others relate simply to the fact that nobody knew how to articulate the concept of disproportionate impacts in an empirically based manner that accurately reflects the lived experiences of overburdened communities and can support analytically rigorous methodologies for integrating it into government programs.

Hence, the emergence of EJ mapping tools that examine impacts in a cumulative manner takes on a truly pivotal significance. I am referring to the advent of the California Environmental Protection Agency’s (CalEPA’s) CalEnviroScreen and U.S. Environmental Protection Agency’s (EPA’s) EJSCREEN mapping tools, along with similar tools in several other states and municipalities. This Article will examine this idea in the context of the recent “national inflection point” in the conversation about systemic racism in the United States.

Specifically, the Article will do the following:

- (1) Summarize typical current EJ practice and how relevant scholarly literature has examined it;
- (2) Provide an empirically based working definition of “disproportionate impacts” and discuss how its development is the result of the past two decades of evolving EJ practice;
- (3) Provide a set of basic approaches for operationalizing consideration of disproportionate impacts in EJ integration, and discuss how this can address the current stagnation in EJ practice; and
- (4) Explore the implications of these developments in the context of the current national reckoning with systemic racism and the growing imperative for government at all levels to address disproportionate impacts and systemic racism.

A key theme will be how assessing and addressing disproportionate impacts and systemic racism in government programs assumes immensely greater significance in the wake of the police killings of George Floyd and other African-American men and women during the summer of 2020. Specifically, I will discuss how opportunities have opened up for EJ practitioners, both inside and outside of government, to take their work of advocating for the integration of EJ considerations in agency policies, programs, and activities to a new level.

In other words, the EJ practitioner can now *“speak truth to power”* in ways never before possible. Not only are we now able to construct inarguable empirical statements that are commensurate with the deep historical and systemic drivers of environmental racism and injustice, but mainstream leaders and the general public are finally listening. Indeed, new tools for operationalizing the consideration of disproportionate impacts are emerging, not the least of which is New Jersey’s recent landmark EJ legislation (S. 232/A.B. 2212).⁷ Hence, we can now discuss what some building blocks of a second generation of EJ practice may look like.

I. Current State of EJ Practice

Some understanding of the current state of EJ practice can provide insight into why this discussion has such fundamental importance. Over the past quarter-century, students of the practice of EJ within government agencies have been consistent, pervasive, and vociferous in their criticism. Two important works serve as a good starting point for understanding the state of EJ practice within government agencies: Jill Lindsey Harrison’s book, *From the Inside Out: The Fight for Environmental Justice Within Government Agencies*,⁸ and Ana Baptista’s Ph.D. dissertation, “Just Policies? A Multiple Case Study of State Environmental Justice Policies.”⁹

Harrison’s book, published in 2019, offers an environmental sociologist’s account of the bureaucratic culture that hinders regulatory agencies’ attempts to integrate EJ in decisionmaking. Harrison describes how managers and staff resist, undermine, and disparage EJ integration. This resistance is based on premises such as: (1) environmental protection is colorblind, (2) bettering the environment overall means that the environment is improved for everyone, (3) EPA is a science agency while EJ deals with social issues, and (4) other “standard narratives” rooted generally in American normative societal values or in long-held premises that have shaped the environmental protection field for decades.

Harrison also details ways in which decisionmakers and managers actively ignore, denigrate, or otherwise under-

5. Exec. Order No. 12898, *supra* note 2.

6. PUBLIC LAW RESEARCH INSTITUTE, ENVIRONMENTAL JUSTICE FOR ALL: A FIFTY STATE SURVEY OF LEGISLATION, POLICIES, AND CASES (4th ed. 2010).

7. See Press Release, Office of New Jersey Gov. Phil Murphy, Governor Murphy Signs Historic Environmental Justice Legislation (Sept. 18, 2020), <https://www.nj.gov/governor/news/news/562020/20200918a.shtml>.

8. JILL LINDSEY HARRISON, FROM THE INSIDE OUT: THE FIGHT FOR ENVIRONMENTAL JUSTICE WITHIN GOVERNMENT AGENCIES (2019).

9. See Ana Baptista, Just Policies? A Multiple Case Study of State Environmental Justice Policies (2008) (Ph.D. dissertation, Rutgers Univ.), <https://rucore.libraries.rutgers.edu/rutgers-lib/24087/PDF/1/play/>.

mine EJ concerns. While such microaggressions have been examined in the context of implicit bias, Harrison is the first to look at them in terms of policymaking and program implementation. “We do ecology, not sociology,” a key standard narrative cited by Harrison, is reminiscent of EPA’s response to my seminal *Toxic Wastes and Race* report.¹⁰ In 1987, J. Winston Porter, former assistant administrator for solid waste and emergency response, wrote that “EPA deals with issues of technology, not sociology.”¹¹

Harrison’s work stands out as a truly groundbreaking piece of social science scholarship on EJ practice within government agencies. Nearly a decade of research on the inner workings of EJ interactions within federal and state agencies formed the basis for the book.¹² Such analysis of the “interactive dynamics among agency staff” had received no attention previously in the EJ literature. Environmental agencies were generally characterized as “black boxes,” opaque to outsiders and devoid of any sense of the actual narratives shaping deliberation on issues. Thus, *From the Inside Out* can also be described as a work that pierced the veil and illuminated actual agency thought processes.

Because she captured key discursive elements of real-life narratives, Harrison provides a body of information that is both rich and authentic. This Article focuses on other elements with respect to EJ integration, such as the analytical tools and staff capacity needed to move beyond the practice described by Harrison. However, the barriers she has identified must also be addressed. Part IV of this Article will discuss how conditions for doing so are changing in the context of the current national reckoning with systemic racism.

Baptista’s work focuses on integration of EJ within state agencies. She is a scholar with roots in community activism, who conducted her scholarly research subsequent to and concurrent with her community activism and policy advocacy. Hence, her analysis is enhanced by her broad understanding of community perspectives as well as her own efforts to advance EJ practice. Among other things, “Just Policies?” makes two major contributions.

The first is the observation that virtually all EJ practice in government agencies has stagnated at the point of procedural justice. In essence, the default approach to addressing EJ concerns is to conduct more public participation. Over time, this invariably devolves into pro forma box-checking exercises—more public meetings, but no changes in outcomes. In Part III, I will provide a detailed discussion of

the issue of overcoming stagnation in EJ integration in government programs.

Baptista’s second major contribution is articulating the concept of structural justice.¹³ Her discussion is framed through the lens of a taxonomy of key elements of EJ. In “A Taxonomy of Environmental Justice,” Robert Kuehn posited four elements: procedural, distributive, compensatory, and social justice.¹⁴ David Schlosberg added recognition justice, which speaks to the social norms, language, and mores that mediate our relations with those who are denigrated and less well-off.¹⁵ To these, Baptista added structural justice, a concept that is deeply rooted in issues of race and the structural processes that perpetuate racism through government decisions and interactions with people-of-color communities.

If the goal is to address EJ in terms of systemic and structural issues of inequity in U.S. society, we are definitely falling short. Virtually all EJ practice has been confined to the procedural justice element, with EJ defined as solely consisting of more community involvement. This is inevitable if there is no understanding of the substantive core of such concerns speaking to the need for a systematic and rigorous way to operationalize the concept of disproportionate impacts.

Other important work over the past two decades has added other key concepts. Robert Bullard put forth a public health model of prevention as the preferred strategy, with community-focused targeting of action and resources to prevent or redress disproportionate impacts.¹⁶ Ryan Holifield has written on how it has been notoriously difficult for government agencies to define the term “disproportionate impacts.”¹⁷ David Pellow spoke to the importance of looking critically at race¹⁸; among other things, he wrote about the importance of the Black Lives Matter movement for EJ and the need for intersectionality. Tanya Lewis and Jessica Owley looked at state EJ policy and critiqued the notion of “symbolic politics.”¹⁹ Jonathan London focused on conflict and collaboration between communities and government

10. COMMISSION FOR RACIAL JUSTICE, UNITED CHURCH OF CHRIST, *TOXIC WASTES AND RACE IN THE UNITED STATES* (1987), available at <http://uc-cfiles.com/pdf/ToxicWastes&Race.pdf>.

11. Recollection of the author. The statement is similar to one attributed to J. Winston Porter, EPA assistant administrator for solid waste and emergency response, in Lena Williams, *Race Bias Found in Location of Toxic Dumps*, N.Y. TIMES, Apr. 16, 1987, <https://www.nytimes.com/1987/04/16/us/race-bias-found-in-location-of-toxic-dumps.html>.

12. Harrison is the first researcher to do extensive interviews with actual agency staff, which is a different approach for EJ researchers. Harrison has a long history of studying EJ within regulatory agencies. Her other major contribution to EJ scholarship was an award-winning book on pesticide regulation in California. See JILL LINDSEY HARRISON, *PESTICIDE DRIFT AND THE PURSUIT OF ENVIRONMENTAL JUSTICE* (2011).

13. For the purposes of this Article, the words “systemic” and “structural” are being used interchangeably.

14. Robert R. Kuehn, *A Taxonomy of Environmental Justice*, 30 ELR 10681 (Sept. 2000), available at <https://elr.info/news-analysis/30/10681/taxonomy-environmental-justice>.

15. DAVID SCHLOSBERG, *DEFINING ENVIRONMENTAL JUSTICE: THEORIES, MOVEMENTS, AND NATURE* (2007).

16. See ROBERT D. BULLARD, *ENVIRONMENTAL JUSTICE IN THE 21ST CENTURY*, https://uwosh.edu/sirt/wp-content/uploads/sites/86/2017/08/Bullard_Environmental-Justice-in-the-21st-Century.pdf.

17. Ryan Holifield, *Environmental Reviews and Case Studies: Accounting for Diversity in Environmental Justice Screening Tools: Toward Multiple Indices of Disproportionate Impact*, 16 ENV’T PRAC. 77 (2014), available at <https://www.tandfonline.com/doi/abs/10.1017/S1466046613000574?journalCode=uevp20>.

18. DAVID N. PELLOW, *WHAT IS CRITICAL ENVIRONMENTAL JUSTICE?* (2018).

19. Symbolic politics is a concept originally put forward by political scientist Murray Edelman in the 1960s. It refers to laws or policies that can be “labeled as lip service, toothless, empty rhetoric, or window dressing.” While symbolic politics can refer to intentional efforts to deceive the public, government EJ efforts during the past 25 years can typically be described as policies designed “to initiate a political process towards reaching broader goals that the government [was] unable or unwilling to fulfill.” See Tanya Lewis & Jessica Owley, *Symbolic Politics for Disempowered Communities: State Environmental Justice Policies*, 29 BYU J. PUB. L. 183 (2014).

agencies in the implementation of the suite of EJ programs in California.²⁰ Finally, it took decades for EPA to lay the key legal and policy foundations for a credible civil rights program.²¹

With the benefit of insight from decades of practical experience with EJ integration both inside and outside of government, we can build on this body of work by adding a few important components. In this author's opinion, the key way to build on this literature and address Harrison's and Baptista's findings is to build the capacity of the EJ practitioner to deploy the core theories that guide EJ practice. This is where the ability to define and operationalize "disproportionate impacts" becomes so critical.

II. A Foundational Operational Understanding of Disproportionate Impacts

A foundational understanding of disproportionate impacts based on analytically rigorous terms is rooted in the emergence of second-generation EJ mapping tools that have cumulative impacts as their core organizing principle. As indicated earlier, the concept of disproportionate impacts is intertwined with the distribution of environmental and social impacts. Hence, a discussion of cumulative impacts and its relationship to disproportionate impacts is a logical and necessary starting point.

Ever since the EJ movement emerged, there has been a widespread commonsense understanding that communities with EJ concerns typically suffer from a concentration of multiple environmental, public health, and social stressors. This gave rise to the widespread conviction that cumulative impacts constitute a central concern for the EJ movement, which has regarded it as a "holy grail" issue. The concept entered the public policy discourse in a systematic way when CalEPA's Environmental Justice Advisory Committee recommended the following definition, which CalEPA subsequently adopted in 2005:

Cumulative impacts [are] exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-

economic factors, where applicable and to the extent data are available.²²

This was the first formal definition of "cumulative impacts" in an EJ context issued by a government agency at any level of government. Notably, the genesis of this definition were communities in California disproportionately impacted by environmental hazards, who prioritized cumulative impacts as a core policy concern for government in the wake of the passage of the nation's first EJ law. For them, examining the combined impacts of both environmental and social factors was fundamental to assessing and addressing disproportionate impacts, and led to a strategy that ultimately resulted in the development of CalEnviroScreen.²³

From the time when the *Toxic Wastes and Race* report was issued, hundreds, if not thousands, of peer-reviewed journal articles and numerous books have provided empirical evidence of disproportionate environmental impacts in American society.²⁴ Not only is this literature ample, but it is growing in breadth and depth at an exponential pace. There is no better way to illustrate this than the recent attention, both in scientific research and the popular media, to the unmistakably disproportionate impacts of the COVID-19 pandemic on people-of-color, low-income, and/or indigenous communities. Another area of exponential growth is studies on the disproportionate impacts of the climate crisis on these same populations.²⁵

Our decades-long journey from describing to quantifying to mapping disproportionate impacts is portrayed in Figure 1. To set the stage, our account should begin "on the ground" with descriptions of what disproportionate impacts look like in real life. Figure 1 provides images of impacts such as children playing on a basketball court near a petroleum refinery emitting smoke; a child eating paint chips in a dilapidated apartment; children playing in a park next to a roadway heavily used by truck traffic; the impact of natural disasters such as Hurricane Katrina; indigenous people eating contaminated fish; and homes abutting polluting facilities. Countless other examples abound.

20. See Jonathan K. London et al., *Problems, Promise, Progress, and Perils: Critical Reflections on Environmental Justice Policy Implementation in California*, 26 UCLA J. ENV'T L. & POL'Y 255 (2008), available at <https://escholarship.org/content/qt2hb823dd/qt2hb823dd.pdf>.

21. See EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE, U.S. EPA, CASE RESOLUTION MANUAL (2021), https://www.epa.gov/sites/production/files/2021-01/documents/2021.1.5_final_case_resolution_manual_.pdf; EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE, U.S. EPA, EXTERNAL CIVIL RIGHTS COMPLIANCE OFFICE STRATEGIC PLAN: FISCAL YEAR 2015-2020 (2017), https://www.epa.gov/sites/production/files/2017-01/documents/final_strategic_plan_ecrco_january_10_2017.pdf.

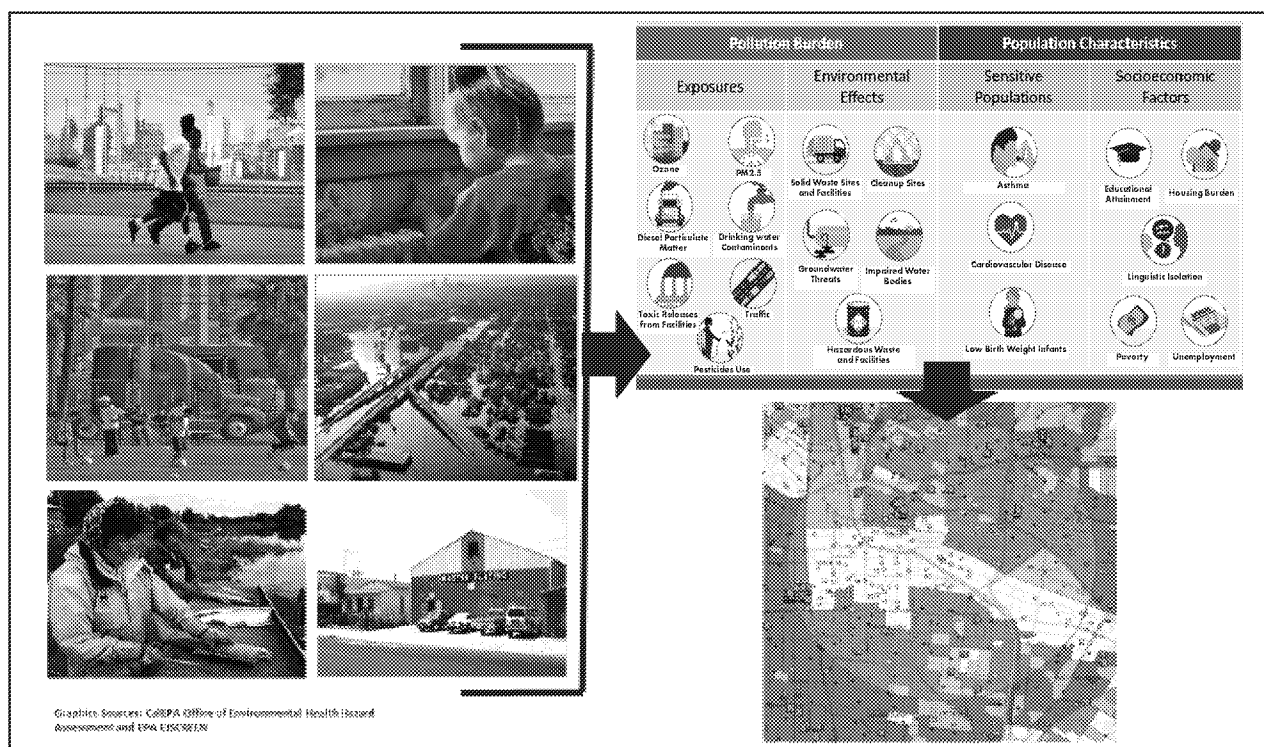
22. See Environmental Health Coalition, *California Environmental Justice*, <https://www.environmentalhealth.org/index.php/en/where-we-work/state-of-california/california-environmental-justice> (last visited Jan. 6, 2021).

23. California passed S.B. 115 in 1999, sponsored by then-State Sen. Hilda Solis. The strategy that placed cumulative impacts at the heart of the state's EJ mapping development is described in my article on the subject. See Lee, *supra* note 1.

24. See Special Supplement on Environmental Justice and Disparities in Environmental Health 101(S1), AM. J. PUB. HEALTH (2011), available at <https://ajph.aphapublications.org/toc/ajph/101/S1>.

25. The term "climate justice" began to gain traction in the late 1990s following a wide range of activities by social and EJ movements that emerged in response to the operations of the fossil fuel industry and, later, to what their members saw as the failed global climate governance model that became so transparent at the 15th Conference of the Parties in Copenhagen. The term continues to gain momentum in discussions around sustainable development, climate change, mitigation, and adaptation, and has achieved prominence in the realm of national and international policy. ROUTLEDGE HANDBOOK OF CLIMATE JUSTICE (Tahseen Jafry ed., 2019), <https://www.routledge.com/Routledge-Handbook-of-Climate-Justice/Jafry/p/book/9781138689350>.

Figure 1. The Decades-Long Journey From Describing to Quantifying to Mapping Disproportionate Impacts



Examples of communities with multiple and cumulative impacts are found in the set of community descriptions made in comments to EPA regarding cumulative risk analysis²⁶ in 2013, submitted by Earthjustice on behalf of a large group of disproportionately impacted community members.²⁷ Two of these communities are Camden, New Jersey, and Port Arthur, Texas, as described below:

Camden, New Jersey once boasted a booming manufacturing industry. It is now known as the poorest city in the nation, with 38% of the population living below the poverty line. Consisting primarily of African Americans

and Latinos, this community is also plagued with high rates of asthma and cancer, including the second highest rate of cancer in the state and eighth in the nation. The Camden area is home to over 100 toxic waste sites, many of which are localized around an impoverished neighborhood of Camden called Waterfront South. Waterfront South encompasses 20% of the city's contaminated sites, and houses more than double the amount of pollution-generating facilities than the average New Jersey neighborhood. The air toxins generated by these facilities include arsenic, lead, nickel, manganese, and cadmium, as well as fine particulate matter. These air pollutants are often associated with respiratory illnesses, learning disabilities, and cancer. Yearly, the area is also subjected to over 400 diesel ships in Camden Harbor and heavy diesel truck traffic throughout the neighborhood, adding to the overall levels of air pollution.²⁸

Port Arthur, a small town with just under 60,000 residents located 90 miles south of Houston on the Gulf Coast of Texas, hosts a large number of industrial sources that release some of the harshest toxic contaminants for public health. Heavy metals and toxic chemicals are released into the air by the Valero Port Arthur Refinery, Huntsman Petrochemical, and the Chevron, as well [as] Flint Hills Resources LLC. Nearby in East Port Arthur [are] Total Petrochemicals USA, Premcor Refining, and BASF FINA Petrochemicals. Motiva Enterprises, owned jointly by Shell Oil Products and Saudi Refining, Inc. and located in

26. It is important to note that the concepts of cumulative impacts and cumulative risks are different. The emergence of the concept of cumulative impacts is rooted in the EJ movement's critique of the limitations of risk assessment, which "seek[s] to 'simplify the multidimensionality of the risk or make sense of the uncertainty' (NRC 1996) or require a volume of information and analyses that far outstrip the resources available to provide them (NRC 2006)." Risk assessment relies on establishing causal relationships regarding single chemicals through highly quantitative means. Cumulative impact analysis, pursuant to the definition provided in this text, seeks to account for a broad range of factors, particularly those related to pollution burden and population vulnerability. The National Research Council (NRC) further states:

Recognition of the limitations in approaching these complex issues [through risk assessment] has led to approaches to widen the risk paradigm, to include the context in which the analysis is performed, the early consideration of a broad range of decision options, and the cumulative threats of multiple social, environmental, and economic stressors to health and the environment.

See NRC, SUSTAINABILITY AND THE U.S. EPA (2011), available at <https://www.nap.edu/read/13152/chapter/7#82>.

27. See Comments Submitted to EPA re: Notice, Request for Information and Citations on Methods for Cumulative Risk Assessment, EPA-HQ-ORD-2013-0292, 78 Fed. Reg. 25440 (May 1, 2013) app. E (2013), <https://www.regulations.gov/document?D=EPA-HQ-ORD-2013-0292-0132>.

28. See *id.*

Port Arthur, is the largest oil refinery in the United States. Right across the fence-line from Motiva Enterprises, are the residents of Carver Terrace, a local community on the West Side of Port Arthur.²⁹

Second-generation EJ mapping tools go beyond merely focusing on demographic indicators. They spatially array the factors EJ researchers have identified as ones that contribute to the cumulative impacts affecting these communities. The first effort to create this mapping tool was performed by EJ researchers Manuel Pastor, Rachel Morello-Frosch, and James Sadd. They worked with community residents and EJ activists to identify those factors of concern in the community, and assembled them into the EJ Screening Method (EJSM).³⁰ The EJSM laid the foundation for CalEnviroScreen.

Eventually, this work was translated into indicators, as shown in the graphic associated with CalEnviroScreen in Figure 1. These were arrayed in terms of pollution burden and population characteristics. Pollution burden consists of exposure and environmental effects. Population characteristics consist of sensitive populations and socioeconomic factors. EJSCREEN, the other major second-generation EJ mapping tool, also included demographic factors.

Key to understanding these tools is the idea that cumulative impacts are a combination of pollution factors and population factors that render the community more vulnerable to pollution. Thus, a more appropriate label for the population element would be “population vulnerability.”³¹ The ability to populate these discrete factors with empirical data made it possible to quantify them. This, in turn, made it possible to map these cumulative impacts and create a tool to visualize the geographic distribution of combinations of such impacts.

These recent advances in EJ and cumulative impacts mapping are critically important for many reasons. Perhaps the most important is the ability to identify discrete factors that contribute to the environmental quality and health of disproportionately impacted communities. These discrete factors can be grouped generally into two basic categories, pollution burden and population vulnerability. Second-generation mapping tools enable us not only to identify these discrete factors, but they quantify them as well.

If you can quantify discrete factors, modern geographic information system (GIS) technology can readily place them on a map. Hence, one can visualize the geographic distribution of these pollution burden and population vulnerability factors. Reflecting on this ability to compile and

visually array these factors, I realized that it was possible to begin articulating an empirically based definition of “disproportionate impacts”—something that has eluded EJ advocates, scholars, policymakers, and practitioners since the issuance of Executive Order No. 12898 in 1994.

The following is a first cut at a working definition of “disproportionate impacts”³²:

Disproportionate environmental and/or public health impacts are combinations of demonstrably greater pollution burden and population vulnerability associated with socially and/or economically disadvantaged communities and populations. Disproportionate impacts may often reflect consistent patterns in the distribution of pollution and vulnerability, and are often a function of historical trends and policy decisions.³³

32. It is extremely important to note that this is a first cut at a working definition of “disproportionate impacts.” My intent is to humbly put forth a working definition to serve as a starting point for discussion, stimulate discourse, and engender a fuller understanding of the concept. A well-built-out, vetted, and agreed-upon definition will require the input of many people and groups, as well as a well-defined public process.

33. Preliminary definitions of key terms are:

- Environmental impacts include degradations in air, water, and soil quality.
- Public health impacts include physiological and/or mental health endpoints or effects on members of a community or population.
- Pollution burden consists of exposure and environmental effects. Exposure refers to inhalation, ingestion, or direct contact with potentially harmful chemical, physical, or biological agents. Environmental effects are degradations in air, water, or soil quality.
- Population vulnerability consists of population characteristics, such as sensitive populations and socioeconomic factors, which render a community more vulnerable to pollution. Sensitive populations possess biological traits or disease conditions associated with increased vulnerability to pollutants. Socioeconomic factors are associated with social and/or economic disadvantage.
- Social disadvantage refers to individuals and groups subjected to racial/ethnic discrimination or cultural bias. Economic disadvantage refers to individuals or groups with lowered ability to earn income or acquire wealth. Together, they are associated with differential outcomes in income, education, health status, life-expectancy, or other indicators of opportunity or quality of life.
- Communities are place-based locations (e.g., a neighborhood, city, ecosystem) while populations represent a subset defined by a characteristic such as race/ethnicity or commonality (e.g., African Americans, immigrants, persons with disabilities, frontline communities affected by a given environmental hazard).
- Patterns refer to repeated events, policies, behaviors, or outcomes with respect to type of occurrence, affected communities or populations, or time.
- Historical trends and policy decisions refer to a set of actions, events, or developments over time associated with a set of common outcomes, systemic or institutionalized behaviors, or societal norms.
- Demonstrably greater means the existence of qualitative or quantitative information associated with current or potential environmental and/or public health concerns. Qualitative information may be community accounts, press stories, or historical or policy analyses. Quantitative information may be data, maps or other visualizations, or studies showing measurable levels of intensity, comparability, or correlation. To the extent possible, the analyst should strive to provide information that is sufficient to support action to reduce disproportionate impacts for the appropriate decisionmaking context.

29. See *id.*

30. James Sadd et al., *Playing It Safe: Assessing Cumulative Impact and Social Vulnerability Through an Environmental Justice Screening Method in the South Coast Air Basin, California*, 8 INT'L J. ENV'T RSCH. & PUB. HEALTH 1441 (2011).

31. The term “population vulnerability” was also used in a 2009 New Jersey Department of Environmental Protection (NJDEP) report. See ENVIRONMENTAL JUSTICE ADVISORY COUNCIL, NJDEP, STRATEGIES FOR ADDRESSING CUMULATIVE IMPACTS IN ENVIRONMENTAL JUSTICE COMMUNITIES (2009), https://www.nj.gov/dep/ej/docs/ejac_impacts_report200903.pdf.

In the United States, these disproportionate impacts are primarily experienced by people-of-color, low-income, and/or indigenous communities. Additionally, ample and growing empirical evidence unequivocally demonstrates the existence of this consistent pattern in multiple ways. As the above definition indicates, there is likely a linkage to historical trends and the involvement of a temporal dimension. These facts drive the EJ movement and its focus on issues of race, class, and colonization.

To be sure, anecdotal descriptions represent very compelling information, as countless community members testify at public hearings every day to express their concerns about their communities' well-being. However, we all know from bitter experience how they are often ignored, criticized, or marginalized. Having peer-reviewed, government-sanctioned, and quantitative data changed the terms of the conversation and went a long way toward ensuring that the data are taken seriously. It provided a basis by which we can define and discuss the concept of disproportionate impacts in analytically rigorous terms.³⁴

This mapping capacity not only enables examination of information based on objective (based on empirical evidence), comparable (quantitative), and visualizable (mapped) terms, it also puts this information in front of the analysts and decisionmakers in a form they cannot ignore.³⁵ The degree to which we can establish a nexus between the evidence and the action being considered will determine how policy-relevant the evidence is.

Three other important frames may need to be considered and built into a definition of "disproportionate impacts." The first such frame may be environmental impacts other than pollution. This may involve impacts related to climate change, such as sea-level rise, extreme precipitation, storms, flooding, extreme heat, drought, urban heat islands, and wildfires.³⁶ The second such frame may be the distribution of environmental benefits. This may involve benefits such as green space, healthy food, walkable streets, green infrastructure, water accessibility and affordability, and those associated with the concept of a "just transition."³⁷ The third such frame may be issues associated with aesthetic and cultural considerations as well as preservation of "important historic, cultural and natural aspects of our

national heritage," pursuant to the National Environmental Policy Act (NEPA).³⁸

Nonetheless, we have enough of a foundational operational understanding of disproportionate impacts to begin exploring its implications. Part III will focus on approaches for operationalizing disproportionate impacts within EJ integration, and how strengthening the analysis of disproportionate impacts can address a fundamental flaw in EJ practice to date. Part IV will examine how the disproportionate impacts concept is aligned with the imperative to address systemic racism, looking at both the challenges and opportunities created by the current national reckoning with the issue.

III. Operationalizing Disproportionate Impact Analysis in EJ Integration

EPA's definition of "EJ" involves two basic components (i.e., fair treatment and meaningful involvement of all people with respect to laws, regulations, and programs that affect the environment and public health).³⁹ Based on this definition, the two basic approaches for integrating EJ in government programs are (1) identifying, characterizing, and integrating disproportionate impacts, and (2) enhancing meaningful community engagement.

An important motivation for this section is my goal of diagnosing and offering a pathway to overcome the current stagnation in EJ practice, an issue I introduced in Part I. This involves correcting the imbalance in the conceptualization and practice of EJ that has reduced it to community involvement only. Not only has conducting more public participation been the default approach to addressing EJ concerns, virtually all practitioners, including government officials, actually define EJ practice as consisting of public participation only. Moreover, most EJ practitioners find it difficult to explain what it means to achieve fair treatment.

While both fair treatment and meaningful involvement are fundamental and must be implemented concurrently, not understanding how to identify, characterize, and integrate disproportionate impacts essentially has left the EJ practitioner rudderless. As a result, most EJ practitioners have been operating without an analytical framework to guide how they will assess and act upon what they have heard during the community involvement process.

As Part I of this Article summarized, EJ practice has been afflicted with the problem of process without substance. It is the natural outcome of two major drivers. The

34. Besides having great relevance for government analysts, policymakers, and decisionmakers, this empirically based information also empowers communities to advocate for consideration of their concerns more effectively. See Arsenio Mataka's discussion of EJ mapping tools being third-party validators and an empowerment tool for communities in Lee, *supra* note 1.

35. No mapping tool or analytical methodology is ever going to be able to capture all the real-life complexity of a disproportionately impacted community. Hence, the need for local knowledge and the ability of communities to speak for themselves (self-identification) will always remain. In fact, this speaks to the continued importance of qualitative information in environmental analysis and decisionmaking.

36. The Washington Legislature requested that a climate layer be added to the state's Washington Health Disparities Map. Others are undertaking such efforts as well. See Lee, *supra* note 1.

37. Just Transition seeks to ensure that all people, including workers and low-income individuals, are not left behind in the transition to a clean energy economy.

38. See 42 U.S.C. §§4321-4370h, ELR STAT. NEPA §§2-209.

39. This articulation is different than the current definition used by multiple federal and state agencies that reads "development, implementation and enforcement of environmental laws, regulations and programs." More often than not, the current version is interpreted as laws such as the Clean Air Act, Clean Water Act, and others that are explicitly environmental in nature. It has been a challenge trying to get all agencies to see EJ as part of their mission and how their work directly and holistically intersects with the spatial distribution of environmental benefits and burdens. Some top federal officials have failed to appreciate this, such as for example in the response of a former director of the Centers for Disease Control and Prevention (CDC) who, when asked what the CDC is doing on the issue, declared EJ is EPA's responsibility.

first is simply that EJ is a recent and emerging endeavor, no more than some three decades in the making, and the field is working through many formative challenges. We are all learning as we grow and mature our theory and practice. The second is that EJ practitioners are just beginning to articulate the concept of disproportionate impacts, an understandable lag given the headwinds of deep-rooted historical pressures against talking about EJ issues in terms of systemic racism and inequity. This underscores the importance of a systematic approach toward identifying, characterizing, and integrating disproportionate impacts.

A. Identifying, Characterizing, and Integrating Disproportionate Impacts

1. Identifying Communities With Disproportionate Impacts

Identifying communities that suffer greater pollution burden and population vulnerability is a fundamental first step for integrating EJ in government decisionmaking. In order to focus attention and resources on the most disproportionately impacted areas, one must know where they are located. Recent advances in EJ practice have made this possible by revealing a basic architecture for operationalizing disproportionate impacts. Because tools and methods now exist that map the distribution of greater pollution burden and population vulnerability, we can readily identify such disproportionately impacted areas. Over time, our ability to do so will become more sophisticated and accurate. Essentially, EJ at its core is about the spatial distribution of environmental burdens and benefits.

As indicated earlier, the two most important tools in this regard are CalEPA's CalEnviroScreen and EPA's EJSCREEN. There are many articles now that describe them, in terms of their technical specifications as well as the organizing and politics that brought them about. These are spawning other such second-generation EJ mapping and screening tool development efforts, on both the state and municipal levels. Beside California, these are now taking place in Colorado, Illinois, Maryland, Massachusetts, Michigan, New York, North Carolina, Pennsylvania, and Washington. They are also taking place in Chicago and Newark, with the possibility of many more municipalities. My recent article on lessons learned from state experience in EJ mapping and cumulative impacts spoke of "a thousand flowers blooming" in this arena.⁴⁰

Developed by CalEPA's Office of Environmental Health Hazard Assessment (OEHHHA) and released in 2013, CalEnviroScreen is a mapping tool that identifies California communities that are most affected by multiple sources of pollution and most vulnerable due to their health and

socioeconomic status. CalEnviroScreen combines 20 indicator data sets categorized into four broad groups—exposures, environmental effects, sensitive populations, and socioeconomic status. These indicators are analyzed at a census tract level to produce a combined score that enables relative ranking of all census tracts across the state. This tool now enjoys broad public acceptance from most stakeholder groups, including business and local government.⁴¹

Released in 2016 as an official publicly accessible tool after a lengthy public input period, EJSCREEN is EPA's nationally consistent EJ mapping and screening tool.⁴² EPA uses EJSCREEN to identify areas that may be candidates for additional consideration, analysis, or outreach as EPA develops policies, programs, and activities that may affect communities. The core elements of EJSCREEN are 11 environmental indicators and six demographic indicators.⁴³ It provides information at the census block group level, the highest level of resolution for which the U.S. Census Bureau provides data.⁴⁴

EJSCREEN is a web-based tool accessible to all. Users can define an area of interest, such as a point, line, buffer, or polygon, and access a wide array of environmental and demographic data as well as the location of sensitive populations like schools, day care centers, hospitals, and public housing projects.⁴⁵ The availability of user-defined areas is an extremely powerful function and makes EJSCREEN useful for enforcement targeting, permitting, and other site-specific applications. Other features include batch processing and the ability to import data to ArcGIS and other platforms.

The primary feature that distinguishes CalEnviroScreen and EJSCREEN from the first generation of such tools is their inclusion of pollution burden and population vulnerability indicators. We have come to the point where such tools have been or are being developed for other states and municipalities. They are examples of a second generation of EJ mapping and screening tools. Earlier "first-generation" EJ mapping and screening tools, developed between the late 1990s to mid-2000s, focused solely on demographic indicators and were often used as a threshold analysis to trigger some sort of action in the form of greater public participation.

41. See OEHHHA, *CalEnviroScreen*, <https://oehha.ca.gov/calenviroscreen> (last visited Jan. 6, 2021).

42. See U.S. EPA, *EJSCREEN: Environmental Justice Screening and Mapping Tool*, <https://www.epa.gov/ejscreen> (last updated Aug. 2, 2018).

43. The formula for calculating EJSCREEN's EJ Indexes is found at U.S. EPA, *Environmental Justice Indexes in EJSCREEN*, <https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen> (last updated Dec. 2, 2019).

44. See Block Groups for the 2020 Census—Final Criteria, 83 Fed. Reg. 56293 (Nov. 13, 2018), available at <https://www.govinfo.gov/content/pkg/FR-2018-11-13/pdf/2018-24570.pdf>.

45. The tool is housed on EPA's Geospatial Platform (GeoPlatform), which provides access to a huge number of data sets. The GeoPlatform is a strategic national resource that supports strategies to enhance transparency, collaboration, and participation. The GeoPlatform provides data, services, and applications for use by federal agencies—and their state, local, tribal, and regional partners, and the broader needs of the nation. It acts as a one-stop shop for data associated with federal government web services and applications, with more than 160,000 data sets registered in its data catalog.

40. See Lee, *supra* note 1.

Box 1. Data Sources

- CalEnviroScreen
- EJSCREEN
- CDC Social Vulnerability Index
- NEPAassist
- American Community Survey
- County Health Rankings
- Community Commons
- Environmental Health Tracking Network
- Toxics Release Inventory
- Nonattainment Areas for Criteria Pollutants
- Enforcement and Compliance History Online
- TCEQ Emission Events Database

Box 2. Quantitative Studies and EJ Analyses

- Race, Space, and Ambient Air Toxics in California (2005)
- Separate and Unequal (2006)
- Toxic Wastes and Race at Twenty (2007)
- Houston Disproportionate Exposure (2014)
- Corpus Christi Title VI Complaint (2015)
- Living in the Shadow of Danger (2016)
- West Oakland Title VI Complaint (2017)
- The Struggle for Water Justice (2018)
- Watered Down Justice (2019)
- Redlining and Urban Heat Islands (2020)
- Concentrating Risk (2020)
- Michigan EGLE Nondiscrimination Complaint (2020)

2. Characterizing Disproportionate Impacts

Beyond screening for and identifying areas of EJ concern, it is necessary to look more deeply and characterize the disproportionate impacts affecting a community or group of communities. To the extent possible, the analysis should establish a nexus between the evidence informing the relevant factors with the issue being addressed and applicable statutory or regulatory authorities. The stronger this nexus, the more likely it will influence a decision.

Three major questions are important for characterizing disproportionate environmental and public health impacts in communities. First, multiple sources of quantitative data now exist as well as approaches for analyzing them. Box 1 provides some examples of such data sources.⁴⁶ Studies and analyses regarding disproportionate impacts are gaining greater sophistication, including those filed within the context of civil rights enforcement. Box 2 provides examples of quantitative studies and EJ analyses.⁴⁷ Systematic reviews

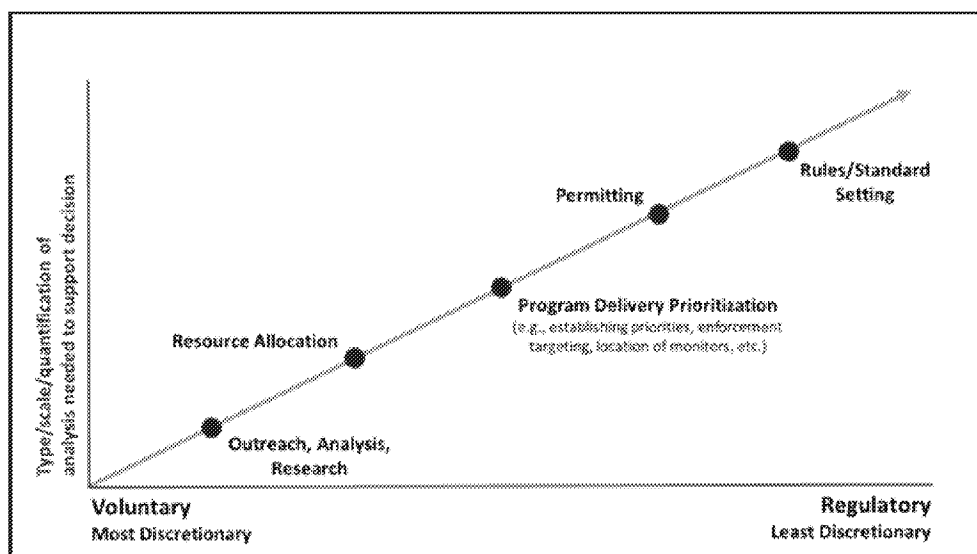
that catalogue, categorize, and critique such data sources, quantitative studies, and EJ analyses will be a major task for advancing the overall state of EJ integration practice.

46. See OEHA, *supra* note 41 (or analogous version in other states); U.S. EPA, *supra* note 42; Agency for Toxic Substances and Disease Registry, *CDC Social Vulnerability Index*, <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html> (last reviewed Sept. 15, 2020); U.S. EPA, *NEPAassist*, <https://www.epa.gov/nepa/nepassist> (last updated Dec. 23, 2019); U.S. Census Bureau, *American Community Survey Data*, <https://www.census.gov/programs-surveys/acs/data.html> (last revised Mar. 30, 2020); County Health Rankings & Roadmaps, *Home Page*, <https://www.countyhealthrankings.org/> (last visited Jan. 6, 2021); Community Commons, *Home Page*, <https://www.communitycommons.org/> (last visited Jan. 6, 2021); CDC, *National Environmental Public Health Tracking Network*, <https://ephtracking.cdc.gov/> (last updated Apr. 29, 2020); U.S. EPA, *Toxics Release Inventory (TRI) Program*, <https://www.epa.gov/toxics-release-inventory-tri-program> (last updated Jan. 12, 2021); U.S. EPA, *Nonattainment Areas for Criteria Pollutants (Green Book)*, <https://www.epa.gov/green-book> (last updated Dec. 31, 2020); U.S. EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov/> (last updated Jan. 14, 2021); Texas Commission on Environmental Quality, *Search the Air Emission Event Report Database*, <https://www2.tceq.texas.gov/ocel/ee/index.cfm> (last visited Jan. 6, 2021).

47. See Manuel Pastor et al., *The Air Is Always Cleaner on the Other Side: Race, Space, and Ambient Air Toxics Exposures in California*, 27 J. URB. AFF. 127 (2005), available at https://www.researchgate.net/publication/249391526_

The Air is Always Cleaner on the Other Side: Race, Space, and Ambient Air Toxics Exposures in California; Rachel Morello-Frosch & Bill M. Jesdale, *Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated With Ambient Air Toxics in U.S. Metropolitan Areas*, 114 ENV'T HEALTH PERSP. 386 (2006), available at <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.8500>; ROBERT D. BULLARD ET AL., UNITED CHURCH OF CHRIST, TOXIC WASTES AND RACE AT TWENTY 1987-2007 (2007), http://d3n8a8pro7vnmix.cloudfront.net/unitedchurchofchrist/legacy_url/7987/toxic-wastes-and-race-at-twenty-1987-2007.pdf; Jaya-jit Chakraborty et al., *Comparing Disproportionate Exposure to Acute and Chronic Pollution Risks: A Case Study in Houston, Texas*, 34 RISK ANALYSIS 2005 (2014), available at <https://onlinelibrary.wiley.com/doi/full/10.1111/risa.12224>; Letter from Texas RioGrande Legal Aid, Inc., to Title VI Program Coordinator, Federal Highway Administration Office of Civil Rights, Re: Complaint Under Title VI of the Civil Rights Act of 1964 (Mar. 5, 2015), <https://savehillcrestfromharborbridge.files.wordpress.com/2015/03/title-vi-complaint-final-w-signatures.pdf>; CENTER FOR EFFECTIVE GOVERNMENT, *LIVING IN THE SHADOW OF DANGER: POVERTY, RACE, AND UNEQUAL CHEMICAL FACILITY HAZARDS* (2016), <https://www.effectivegov.org/sites/default/files/shadow-of-danger-highrespdf.pdf>; Letter from Earthjustice to Ryan Fitzpatrick, Lead Civil Rights Analyst, U.S. Department of Transportation et al., Re: Complaint Under Title VI of the Civil Rights Act of 1964, 42 U.S.C. §2000d (Apr. 4, 2017), https://earthjustice.org/sites/default/files/2017-04-04-TitleVI_Complaint.pdf; JONATHAN LONDON ET AL., UNIVERSITY OF CALIFORNIA, DAVIS CENTER FOR REGIONAL CHANGE, *THE STRUGGLE FOR WATER JUSTICE IN CALIFORNIA'S SAN JOAQUIN VALLEY: A FOCUS ON DISADVANTAGED UNINCORPORATED COMMUNITIES* (2018), https://regionalchange.ucdavis.edu/sites/g/files/dgvnsk986/files/inline-files/The%20Struggle%20for%20Water%20Justice%20FULL%20REPORT_0.pdf; KRISTI PULLEN FEDINICK ET AL., NATURAL RESOURCES DEFENSE COUNCIL ET AL., *WATERED DOWN JUSTICE* (2019), <https://www.nrdc.org/sites/default/files/watered-down-justice-report.pdf>; Jeremy S. Hoffman et al., *The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 U.S. Urban Areas*, 8 CLIMATE 12 (2020), available at <https://www.mdpi.com/2225-1154/8/1/12/html>; SPATIOTEMPORAL ANALYSIS OF AIR POLLUTION AND ITS APPLICATION IN PUBLIC HEALTH ch. 12 (Lixin Li et al. eds., 2020), available at <https://www.sciencedirect.com/science/article/pii/B9780128158227000121>; Letter from Nicholas Leonard, Great Lakes Environmental Law Center et al., to Nondiscrimination Compliance Coordinator, Michigan Department of Environment, Great Lakes, and Energy, Re: Complaint Under Michigan Department of Environment, Great Lakes, and Energy Policy and Procedure 09-024 (July 27, 2020), https://www.michigan.gov/documents/egle/egle-exec-USE-Complaint-20-001-D_699061_7.pdf.

**Figure 2. Spectrum of EJ Integration Approaches,
Using a “Fit-for-Purpose” Continuum**



Second, social science and historical information that speaks to the roots of systemic inequities in a given community is now more relevant than ever. As Kelly Haragan, the faculty advisor to the Environmental Law Clinic at the University of Texas and a lead attorney for the Harbor Bridge Title VI complaint in Corpus Christi, Texas, said, “[it is] important to understand the history of communities. In many of these areas, the reasons communities of color are exposed to more pollution can be traced to segregation, redlining, racial zoning, and restrictive covenants.”⁴⁸ The next section will discuss this subject in more detail.

Both quantitative and qualitative data matter. Quantitative data provide measurable information about environmental risk and impact critical for decisionmaking purposes based on numerical standards and distributional analyses. Qualitative data help to explain how and why systemic inequities, unfair treatment, and the lack of meaningful involvement have persisted as issues relevant for examination of current situations. This information will be critical for designing solutions that truly fit the problem.

Third, beyond the limits of any scientific method is the need to recognize and honor community knowledge and the lived experience of communities in fully understanding disproportionate impacts. Never is empirical data, given its limitations, going to be totally sufficient in assessing the impacts within a community and understanding the systemic roots of its EJ issues. Hence, it is important that communities must speak for themselves. This is an example of the recognitional justice element, as articulated by Schlosberg. It also goes to the heart of the American experiment: government of, by, and for the people.

3. Integrating Disproportionate Impact Analysis in Decisionmaking

As momentous as they may be, the development of tools and methodologies that map the disproportionate distribution of cumulative impacts cannot be an end in and of itself. It is paramount that we act on this information to make a difference in these communities. This involves prioritizing attention and resources to the most overburdened communities as well as identifying and redressing the policy decisions that led to such inequities. Ultimately, there will be a robust spectrum of applications for using this information. It can be organized along a fit-for-purpose continuum, which stipulates that “assessments are most useful when they are designed to answer specific questions, with a level of technical evaluation that is appropriate for the decision context (‘fit for purpose’).”⁴⁹ It also recognizes that as the programmatic context moves from voluntary to regulatory, the need for greater resources, scale of analysis, and level of quantification increases as the decision context allows for less discretion.

The outlines of the elements of this Spectrum of EJ Integration Approaches, as shown in Figure 2, are already revealing themselves. On one end is identifying areas for enhanced community engagement, including communities with limited English proficiency. Using tools and methods for better identifying and characterizing disproportionate impacts supports a more precise, robust, and effective community outreach and engagement. It helps the EJ practitioner determine the issues to focus on and helps address the imperative to know how to process information received so that it leads to meaningful action. As such, it becomes a critical tool for guiding research and other forms of investi-

48. See Video: Enhancing Community Involvement in the Regulatory Process (EPA 2019), <https://www.youtube.com/watch?v=iz3sc9xSoPg&feature=youtu.be> (last visited Jan. 6, 2021).

49. See OFFICE OF THE SCIENCE ADVISOR, U.S. EPA, FRAMEWORK FOR HUMAN HEALTH RISK ASSESSMENT TO INFORM DECISION MAKING (2014) (EPA/100/R-14/001), <https://www.epa.gov/sites/production/files/2014-12/documents/hhra-framework-final-2014.pdf>.

gation, as well as more advanced forms of engagement such as land use planning.

Next, there is enough practice now to make resource allocation an important application. In 2012, California enacted Senate Bill (S.B.) 535, which mandated that 25% of the state's Greenhouse Gas Reduction Fund benefit disadvantaged communities. This has amounted to more than three billion dollars.⁵⁰ Illinois passed the Future Energy Jobs Act and directed the Solar for All program to also allocate 25% of funding to "environmental justice communities." New York's Climate Leadership and Community Protection Act mandated that 40% of the renewable energy program benefit communities with EJ concerns. In addition, EJ is identified as a factor in grants provided under EPA's Brownfields Program and Diesel Emissions Reduction Act Program, as well as disbursement of the Volkswagen settlement funds.⁵¹ Resources critically needed to bring environmental benefits to disproportionately impacted communities now amount to billions of dollars, bringing about resources of scale commensurate with the needs of these communities.

Moreover, the use of these tools as one factor for targeting compliance monitoring is low-hanging fruit for applying the disproportionate impacts concept in the regulatory arena. EPA's Office of Enforcement and Compliance Assurance did this in the context of a comprehensive approach that considers EJ concerns at every stage of the enforcement and compliance life cycle, from setting priorities and planning investigations to resolving enforcement actions.⁵²

Last, the development of protocols to address cumulative impacts in the permitting process is taking place for three states, due to legislation in California and Minnesota and, in a most emphatic way, the landmark EJ Act in New Jersey. On September 18, 2020, New Jersey became "the first state in the nation to require mandatory permit denials if an environmental justice analysis determines a new facility will have a disproportionately negative impact on overburdened communities."⁵³ In Part IV, I will discuss the forces that came together to bring about this historic piece of legislation. For now, I leave you with its key provision:

Notwithstanding the provisions of any other law, or rule or regulation adopted pursuant thereto, to the contrary,

the department shall, after review of the environmental justice impact statement . . . and any other relevant information, including testimony and written comments received at the public hearing, deny a permit for a new facility or for the expansion of an existing facility, or apply new conditions to the renewal of an existing facility's major source permit, upon a finding that approval of the permit or permit renewal, as proposed, would, together with other environmental or public health stressors affecting the overburdened community, cause or contribute to adverse cumulative environmental or public health stressors in the overburdened community that are higher than those borne by other communities . . .⁵⁴

B. Enhancing Meaningful Community Engagement

In this section, I will begin by summarizing the elements of meaningful community engagement. The International Association of Public Participation (IAP2) thinks of community engagement as a spectrum. It provides a set of elements arrayed along the lines of the degree of engagement increasing from (1) informing, (2) consulting, (3) involving, (4) collaborating, to (5) empowering. IAP2's definitions of these terms are provided in Box 3.⁵⁵ In much the same way, I had proposed earlier the development of a spectrum to describe the multitude of ways to integrate EJ in decisionmaking.

Box 3. IAP2 Public Participation Spectrum

Informing: To provide the public with balanced and objective information to assist them in understanding the problem

Consulting: To obtain public feedback on analysis, alternatives, and/or decisions

Involving: To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered

Collaborating: To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution

Empowering: To place final decisionmaking in the hands of the public

50. As of 2019, total proceeds from the Greenhouse Gas Reduction Fund amounted to \$12.4 billion, of which at least 25% has benefited disadvantaged communities. See Lee, *supra* note 1.

51. The Volkswagen settlement refers to actions the company will take to resolve allegations that it violated the Clean Air Act by the sale of approximately 590,000 model year 2009 to 2016 diesel motor vehicles equipped with "defeat devices." One element of the settlement is grants that states provide to projects to reduce nitrogen oxide from heavy-duty diesel sources. See U.S. EPA, *Volkswagen Clean Air Act Civil Settlement*, <https://www.epa.gov/enforcement/volkswagen-clean-air-act-civil-settlement> (last updated Aug. 31, 2020). Settlement information for each state can be found at National Association of Clean Air Agencies, *Volkswagen Settlement Information State and Local Agency Links and Programs*, http://4cleanair.org/Volkswagen_Settlement_Information (last visited Jan. 6, 2021).

52. See U.S. EPA, *PLAN EJ 2014 PROGRESS REPORT (2013)* (EPA-300-R-13-001), <https://www.epa.gov/sites/production/files/2015-02/documents/plan-ej-progress-report-2013.pdf>.

53. See Press Release, Office of New Jersey Gov. Phil Murphy, *supra* note 7.

54. See S. 232, 219th Leg. (N.J. 2020), available at <https://www.nj.gov/de/p/ej/docs/ej-law.pdf>.

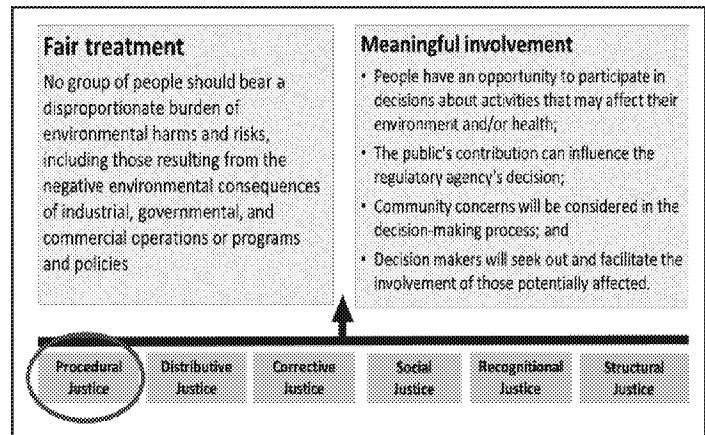
55. See IAP2, *Core Values, Ethics, Spectrum—The 3 Pillars of Public Participation*, <https://www.iap2.org/page/pillars> (last visited Jan. 6, 2021). This is reminiscent of Sherry R. Arnstein's highly influential article, *A Ladder of Citizen Participation*, 35 J. AM. PLAN. ASS'N 216 (1969). See also *Citizen's Handbook, Arnstein's Ladder of Citizen Participation*, <https://www.citizen-shandbook.org/arnsteinsladder.html> (last visited Jan. 6, 2021).

There are now many examples of stellar practice in each of these community engagement areas. Three examples stand out:

- EPA's Office of Air Quality Planning and Standards (OAQPS) conducted multiple trainings and workshops to prepare communities for commenting during Clean Air Act (CAA)⁵⁶ rulemaking efforts.⁵⁷
- The West Oakland Environmental Indicators Project and the Bay Area Air Quality Management District engaged in a power-sharing and joint planning process that resulted in *Owning Our Air: The West Oakland Community Action Plan*.⁵⁸ Margaret Gordon, an iconic community activist in West Oakland, catalyzed this work.
- The ReGenesis Environmental Justice Partnership in Spartanburg, South Carolina, convened multiple government agencies and multiple stakeholders to create a comprehensive community revitalization effort supported by more than \$300 million in funding.⁵⁹ Harold Mitchell, community advocate and former state representative, served as this effort's visionary leader.

As important as the achievement of such examples of positive community engagement is, there exists a stark imbalance in EJ integration practice within government agencies. This is illustrated by the imbalance in the ability to articulate the meaning of the two core prongs of EPA's definition of "EJ," described as fair treatment and meaningful involvement at the beginning of this section. Figure 3 provides the definitions of these two terms currently displayed on EPA's website.⁶⁰ Aside from the fact that the definition of "fair treatment" fails to adopt a justice perspective,⁶¹ one is struck by how vague it is when counterposed against the definition of "meaningful involve-

Figure 3. Evaluating EPA's Definition of "Environmental Justice"



ment." Figure 3 also displays the elements of a taxonomy of EJ in the scholarly literature described earlier. The circle around procedural justice highlights how EJ practice has been largely limited to that element and is largely lacking with respect to the other ones.

Without an analytical framework rooted in an understanding of disproportionate impacts, one will never fully implement the items delineated in the stated definition of "meaningful involvement." At this point, the items articulated in the definition of "meaningful involvement" will never be truly achieved. Not only has EJ practice stagnated at the point of merely doing more community outreach, but it is also unable to know how to assess and act on what is heard in the process. Without such an analytical framework built on properly identifying, characterizing, and integrating disproportionate impacts, the default response for EJ issues devolves into a perfunctory "box to be checked" exercise.⁶²

IV. The National Reckoning With Systemic Racism

Our current national reckoning with issues of race imbues the developments described earlier with even more potential significance. During the summer of 2020, revelations of the disproportionate impacts of COVID-19 to people-of-color communities were coupled with protests in the wake of the police killings of George Floyd and other African-American men and women. The confluence of these two developments may in fact have a transformative impact on policies and programs that affect the environment and public health. This section underscores the profound link between current disproportionate impacts and historical trends and policy decisions, a key idea in our working definition of "disproportionate impacts." It

56. 42 U.S.C. §§7401-7671q; ELR STAT. CAA §§101-618.

57. OAQPS has developed an extensive body of work on training for communities and EJ advocates on the Clean Air Act. One example is Holly Wilson's presentation at the Making a Visible Difference-Portland: Environmental Justice and Air Toxics Workshop, sponsored by U.S. EPA, Oregon Department of Environmental Quality, Oregon Health Authority, Multnomah County, Neighbors for Clean Air, and DS Consulting on March 22, 2017. See Video: Making a Visible Difference-Portland: Environmental Justice and Air Toxics Workshop (Oregon Public Health Division 2017), <https://www.youtube.com/watch?v=KWb1vraZWpk> (last visited Jan. 6, 2021).

58. See Bay Area Air Quality Management District, *West Oakland Community Action Plan*, <https://www.baaqmd.gov/community-health/community-health-protection-program/west-oakland-community-action-plan> (last updated Oct. 1, 2019).

59. See ReGenesis, *Back Story*, <http://rcdc.us/back-story/> (last visited Jan. 6, 2021); Lee, *supra* note 4.

60. See U.S. EPA, *Learn About Environmental Justice*, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (last updated Sept. 24, 2020).

61. Equality generally refers to equal opportunity and the same levels of support for all segments of society. Equity goes a step further and refers to offering varying levels of support depending upon the need to achieve greater fairness of outcomes. Justice refers to the elimination of systemic barriers, including policies resulting in disproportionate impacts. EJ advocates have always pushed for a "justice" lens. This is an ongoing sentiment, expressed through positions on issues such as the precautionary principle, cumulative

impacts, pollution prevention, shifting the burden of proof, and addressing disproportionate impacts.

62. *Friends of Buckingham v. State Air Pollution Control Bd.*, No. 19-1152 (4th Cir. 2020), available at <https://www.courthousenews.com/wp-content/uploads/2020/01/pipeline-station.pdf>.

speaks to the importance of the temporal element in our operational understanding of the disproportionate impacts concept, and opens up an important new dimension to EJ analysis.

My own personal vista on the historical arc of the development of the EJ movement began during the 1980s, when the issue did not have a name. After about two decades, I recognized that the EJ issue was here to stay even though only a small number of fair-minded and farsighted persons recognized its importance. Many pundits glibly predicted the demise of EJ with the change of various political administrations in Washington, D.C. However, EJ has continually gained greater relevance and salience as an important lens by which to understand and address critical challenges in American society and global affairs. Given the pervasiveness with which American society has treated waste and environmental burdens with an “out of sight, out of mind” mentality and the ubiquitous nature of the disproportionate distribution of environmental burdens in the least empowered areas, I knew that EJ would surely have its own moment of reckoning.⁶³

The EJ issue began to move from the domain of impacted communities and a small group of advocates and scholars into the mainstream American consciousness when Hurricane Katrina shined a light on gross historical racial inequities. It was seared into the American mainstream consciousness with the tragic events of the Flint water crisis. COVID-19 brought the reality of disproportionate impacts home to literally every part of the nation.

Today, not only is there an intensifying public expectation that government address such impacts in a meaningful way, but we have much better understanding of the science of disproportionate impacts and can begin to do so. Figure 4 is not merely a logical array of the drivers of disproportionate impacts. There is in fact evidence that shows the links between the drivers of disproportionate impacts within the built, natural, and social environments. For example, a Harvard School of Public Health study found

a correlation between fine particulate matter (PM_{2.5}) exposure and COVID-19 mortality.⁶⁴

COVID-19 is more than a pandemic. It is a syndemic. This term, originally coined by anthropologist Merrill Singer during the 1970s AIDS crisis, is defined by the Centers for Disease Control and Prevention (CDC) as “synergistically interacting epidemics.”⁶⁵

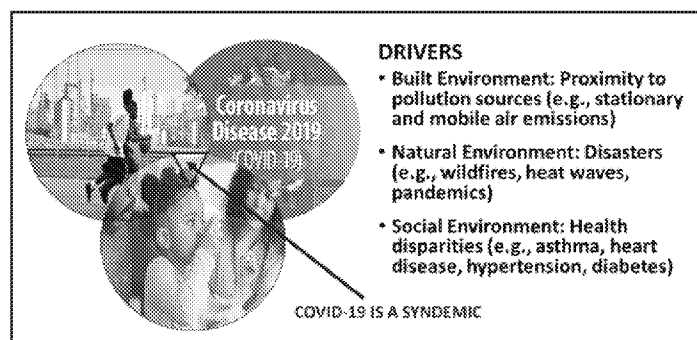
The syndemics model of health focuses on the biosocial complex, which consists of interacting, co-present, or sequential diseases and the social and environmental factors that promote and enhance the negative effects of disease interaction. This emergent approach to health conception and clinical practice reconfigures conventional historical understanding of diseases as distinct entities in nature, separate from other diseases and independent of the social contexts in which they are found. Rather, all of these factors tend to interact synergistically in various and consequential ways, having a substantial impact on the health of individuals and whole populations. Specifically, a syndemics approach examines why certain diseases cluster (i.e., multiple diseases affecting individuals and groups), the pathways through which they interact biologically in individuals and within populations, and thereby multiply their overall disease burden, and the ways in which social environments, especially conditions of social inequality and injustice, contribute to disease clustering and interaction as well as to vulnerability.⁶⁶

This connotes how there are multiple processes related to systemic racism that underlie the disproportionate mortality and morbidity among people-of-color, low-income, and/or indigenous communities. The term “syndemic” is being popularized by Sacoby Wilson, who explains that:

[i]n this country, we have structural inequalities that are a major driver of why we see these different social and environmental conditions in communities of color. You see these different patterns of land uses, whether it be transportation networks, large highways where you have a lot of traffic, or industrial activity.⁶⁷

An important framework for understanding the “structural inequalities” Wilson refers to is the concept of “social determinants of health”—defined by the CDC as the

Figure 4. Science of Disproportionate Environmental Health Impacts



63. In my early writings, I described how Americans and residents of other developed countries treat waste and environmental burdens with an “out of sight, out of mind” mentality. One example is Charles Lee, *The Integrity of Justice*, SOJOURNERS MAG., Feb./Mar. 1990, available at <https://sojo.net/magazine/february-march-1990/integrity-justice>.

64. See Xiao Wu et al., *Air Pollution and COVID-19 Mortality in the United States: Strengths and Limitations of an Ecological Regression Analysis*, 6 SCI. ADVANCES eabd4049 (2020), <https://advances.sciencemag.org/content/advances/6/45/eabd4049.full.pdf>.

65. See CDC, *NCHHSTP Program Collaboration and Service Integration (PCSI) Definitions*, <https://www.cdc.gov/nchhstp/programintegration/definitions.htm> (last reviewed Mar. 5, 2014); see also Merrill Singer & Scott Clair, *Syndemics and Public Health: Reconceptualizing Disease in Bio-Social Context*, 17 MED. ANTHROPOLOGY Q. 423 (2003), available at <https://www.jstor.org/stable/3655345?seq=1>.

66. See Merrill Singer et al., *Syndemics and the Biosocial Conception of Health*, 389 LANCET 941 (2017), available at [https://www.thelancet.com/journals/lanct/article/PIIS0140-6736\(17\)30003-X/fulltext](https://www.thelancet.com/journals/lanct/article/PIIS0140-6736(17)30003-X/fulltext).

67. See Katherine Bagley, *Connecting the Dots Between Environmental Injustice and the Coronavirus*, YALE ENV'T 360, May 7, 2020, <https://e360.yale.edu/features/connecting-the-dots-between-environmental-injustice-and-the-coronavirus>.

“conditions in the places where people live, learn, work, and play that affect a wide range of health and quality-of-life risks and outcomes,” including disparities in disease burden.⁶⁸

During the 1980s, I started to systematically research the existence of disproportionate environmental impacts in people-of-color, low-income, and/or indigenous communities. One early observation pertained to the pervasiveness of these impacts. Disproportionate environmental impacts existed in numerous ways and among every racial and ethnic group. While they were more acute in people-of-color communities, low-income white communities were not immune. Systemic processes contributing to disproportionate impacts included the genocide and relocation of indigenous peoples to reservations on the least habitable lands, post-slavery sharecropper communities remaining next to plantations that are now converted to petrochemical facilities in Louisiana’s chemical corridor, and people-of-color communities being cleared for urban renewal and highway development. One way to understand the concept of EJ is that it is a call to action in response to how environmental burdens and benefits are spatially distributed in ways shaped by these systemic inequities.

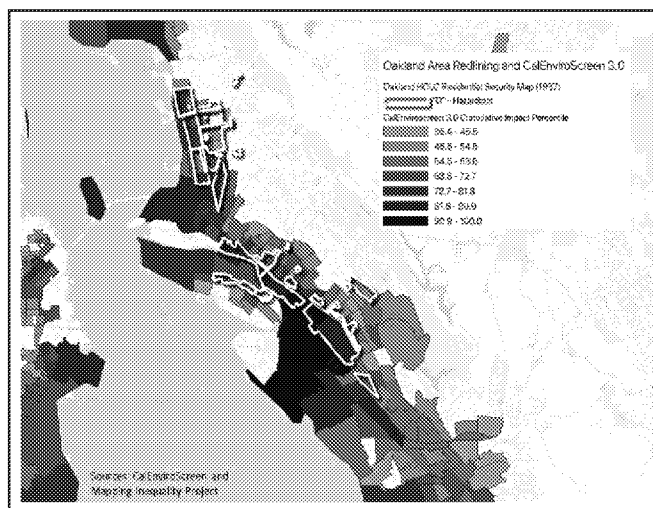
Historically, the mainstream environmental movement failed to speak to the needs of people-of-color, low-income, and/or indigenous communities. Moreover, there has been a lack of environmental analysis focused on efforts to achieve racial and economic justice.⁶⁹ The advent of EJ as a significant national issue, labeled by some as the “civil rights issue of the twenty-first century,” is beginning to change that. One example is that when the state of California delineated an area as disadvantaged, it used environmental issues as an integral part of how it defines the concept. Moreover, New Jersey’s S. 232/A.B. 2212 defined “overburdened” as minority and low-income communities meeting a certain threshold.⁷⁰

We may be witnessing another game changer in the making with the growing focus on the historical legacy of redlining. Redlining is the conscious practice of intentional racial steering and denial of credit in real estate transactions fully backed and promoted by the federal government. As Richard Rothstein says in his insightful book *The Color of*

Law: A Forgotten History of How Our Government Segregated America, intentional government policy has been and remains the biggest driver in housing choice.⁷¹ His book is accompanied by a video aptly entitled “Segregated by Design.”⁷² A recent exhibit named “Undesign the Redline” is making its way across the country to promote dialogue about how to undo the multiple current consequences of this policy.⁷³

Two historians, Robert Nelson, director of the University of Richmond Digital Scholarship Laboratory, and David Winling, an urban historian at Virginia Tech, played a critical role in catalyzing a groundswell of research activity, community activism, and public policy attention. In 2016, they launched the Mapping Inequality project. As part of a larger American Panorama project, Nelson’s Digital Scholarship Laboratory produced digitized versions of the redlining maps for about 200 cities, created in the 1930s by the federal Home Owners’ Loan Corporation (HOLC), and made them available as a publicly accessible resource.⁷⁴ Figure 5 is a map of the areas designated as “D-Hazardous” within the HOLC maps overlaid on the cumulative impacts scores from CalEnviroScreen for Oakland, California. It graphically illustrates the relationship between the historical legacy of conscious policies on residential segregation and current environmental conditions, a phenomenon repeated throughout urban areas across the nation.

Figure 5. Redlining Maps Overlaid on CalEnviroScreen for Oakland, California



As researchers committed to “shared” and “applied” history, Nelson and Winling’s wisdom in creating a resource

68. See CDC, *Social Determinants of Health: Know What Affects Health*, <https://www.cdc.gov/socialdeterminants/index.htm> (last reviewed Aug. 19, 2020).

69. This is one reason why California’s S.B. 535 was so precedent-setting. It incorporated environmental factors as a critical piece of determining social disadvantage. When I started to talk about EJ in the 1980s, I found that the question of what civil rights has to do with the environment was just as prominent among people of color as among white environmentalists. This was evidence of the historical separation between the two endeavors.

70. The term “overburdened” was first defined and used extensively in EPA’s Plan EJ 2014. In the case of New Jersey’s EJ legislation, thresholds were established:

“Overburdened community” means any census block group, as determined in accordance with the most recent United States Census, in which: (1) at least 35 percent of the households qualify as low-income households; (2) at least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or (3) at least 40 percent of the households have limited English proficiency.

See S. 232, *supra* note 54.

71. RICHARD ROTHSTEIN, *THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA* (2017).

72. See Video: *Segregated by Design* (Silkworm Studio 2019), <https://vimeo.com/328684375> (last visited Jan. 6, 2021).

73. See Design the WE, *Undesign the Redline*, <http://www.designingthewe.com/undesign-the-redline> (last visited Jan. 6, 2021).

74. University of Richmond Digital Scholarship Laboratory, *Mapping Inequality Project*, <https://dsl.richmond.edu/panorama/redlining/> (last visited Jan. 6, 2021).

is evidenced by the studies already using this information.⁷⁵ In early 2020, the *Lancet* published a study on redlining and emergency department visits due to asthma across eight cities in California.⁷⁶ Additionally, Jeremy Hoffman and Vivek Shandas collaborated on a study regarding the correlation between redlining areas and the location of current heat islands.⁷⁷ Given the provocative and dramatic news reports and studies of the disproportionate impacts of the COVID-19 pandemic, studies on the relationship between redlining and COVID-19 impacts have begun to appear.⁷⁸ These presage many other studies to come. Obvious areas are the intersection between redlining and climate impacts, food deserts, and other infrastructure issues that directly impact public health in communities.

Most importantly, this research is being advanced by community activists. The Groundwork USA Climate Safe Neighborhoods partnership brought together five Groundwork Trusts to explore the relationship between historical race-based housing segregation and the current and predicted impacts of climate change. Trusts in Denver, Colorado; Elizabeth, New Jersey; Rhode Island; Richmond, Virginia; and Richmond, California, are working closely with residents and stakeholders to organize, mobilize, and effect systems change to make communities more resilient to extreme heat and flooding.⁷⁹

Groundwork Denver is working with residents from the formerly redlined neighborhoods of Westwood, Globeville, and Elyria/Swansea to identify and prioritize climate mitigation measures. Residents will then seek the implementation of those projects in their neighborhoods under the funding stream generated by Colorado's recently passed Ballot Measure 2A. Groundwork RVA is working with residents of the Highland Park and Oak Grove-Bellemeade neighborhoods to prioritize climate mitigation measures and push for their incorporation into Richmond, Virginia's, new master plan.⁸⁰

Hoffman's study mentioned earlier on redlining and urban heat islands found that two major drivers for urban heating were impervious surfaces and lack of tree canopy. This work, done in partnership with and guided by community residents, was designed to support their activism. Through his work, Hoffman seeks to develop a "commu-

nity science model." He represents a new breed of scientists, working in community-oriented institutions like science museums and similar institutions. In his mind, this model consists of (1) serving as a focal point for bringing together community residents, scientists, and policymakers; (2) serving to generate knowledge that can be a catalyst for change; and (3) developing methodologies and products that can be scalable—particularly for neighborhood use. The visualization of the problem through redlining maps is critical.⁸¹ As Cate Mingoya, director of capacity building at Groundwork USA observed, "Even people who don't believe [the existence of] institutionalized racism are struck when we show them these maps. We didn't get here by accident, and we're not going to get it fixed by accident."⁸²

As mentioned earlier, EJ at its core is about the spatial distribution of environmental benefits and burdens. Winling described redlining as the Rosetta Stone that unlocks an understanding of the spatial organization of most American cities. It "most definitely created a template" that would be built out over generations.⁸³ Rothstein, who cited *Toxic Wastes and Race* in *The Color of Law*, described the almost universally repeated dynamic resulting from the imperative to keep certain areas pristine. This led to the rezoning of and unfettered placement of noxious facilities in people-of-color and formerly redlined areas.

In Los Angeles, for example, a black community became established in the South Central area of the city in the 1940s. The neighborhood had some industry, but its non-residential character was more firmly entrenched when the city began a process of "spot" rezoning for commercial or industrial facilities. Automobile junkyards became commonplace in the African American neighborhood. In 1947, an electroplating plant explosion in this newly developing ghetto killed five local residents (as well as fifteen white factory workers) and destroyed more than one hundred homes. When later that year the pastor of an African American church protested a rezoning of property adjacent to his church for industrial use, the chairman of the Los Angeles City Council's planning committee, responsible for the rezoning, responded that the area had now become a "business community," adding, "Why don't you people buy a church somewhere else?"⁸⁴

The increasing impact of historians in the EJ discourse, particularly through use of digital technology, can be a very consequential development for EJ practice. I remind you of Haragan's earlier words about tracing disproportionate environmental outcomes to their historical causes for the Corpus Christi Title VI complaint. According to Nelson, these visualizations show that the pattern of racially segre-

75. Telephone Interview with Robert Nelson and LaDale Winling (Sept. 25, 2020).

76. Anthony Nordone et al., *Associations Between Historical Residential Redlining and Current Age-Adjusted Rates of Emergency Department Visits Due to Asthma Across Eight Cities in California: An Ecological Study*, 4 LANCET PLANET HEALTH e24 (2020), [https://www.thelancet.com/action/showPdf?pii=S2542-5196\(20\)30241-4](https://www.thelancet.com/action/showPdf?pii=S2542-5196(20)30241-4).

77. Hoffman et al., *supra* note 47.

78. See JASON RICHARDSON ET AL., NATIONAL COMMUNITY REINVESTMENT COALITION, THE LASTING IMPACT OF HISTORIC "REDLINING" ON NEIGHBORHOOD HEALTH: HIGHER PREVALENCE OF COVID-19 RISK FACTORS (2020), available at <https://nccrc.org/holc-health>.

79. Groundwork USA, *Climate Safe Neighborhoods*, <https://groundworkusa.org/focus-areas/climate-safe-neighborhoods/> (last visited Jan. 26, 2021).

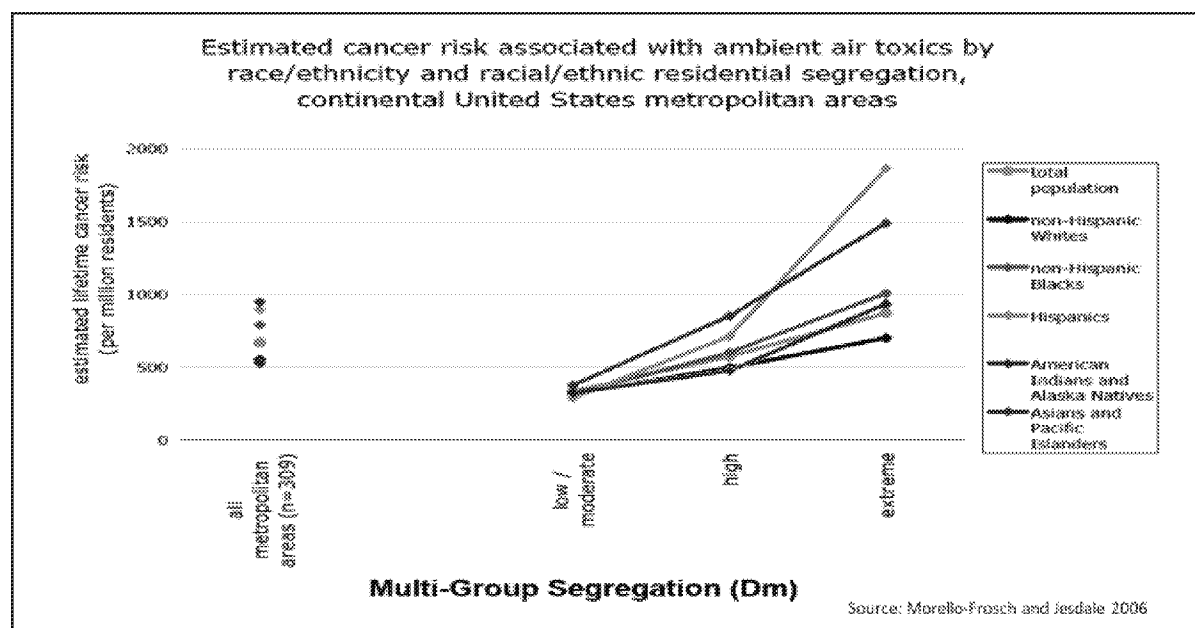
80. For an excellent discussion that demonstrates the synergy of digital historians, climate scientists, and community activists working together, see the National Center for Civil and Human Rights webinar on EJ, redlining, and the climate crisis from December 4, 2020, at <https://www.youtube.com/watch?v=dLVa8EDvJ84> (last visited Jan. 6, 2021).

81. Telephone Interview with Jeremy Hoffman (Oct. 5, 2020).

82. See Brad Plumer & Nadja Popovich, *How Decades of Racist Housing Policy Left Neighborhoods Sweltering*, N.Y. TIMES, Aug. 24, 2020, <https://www.nytimes.com/interactive/2020/08/24/climate/racism-redlining-cities-global-warming.html>.

83. Telephone Interview with Robert Nelson and LaDale Winling (Sept. 25, 2020).

84. ROTHSTEIN, *supra* note 71.

Figure 6. Residential Segregation and Air Toxics

gated housing “was not a coincidence. [It] was intentional. [It] was built this way.” Moreover, he wrote, “There were no dog whistles. The racism was loud and clear.”⁸⁵ The Mapping Inequality project also includes a set of verbatim surveyor’s descriptions of the redlined areas that demonstrated how redlining was a policy carried out with full awareness of its consequences. Examples provided for the city of Oakland in Box 4 were repeated throughout the nation.⁸⁶

Box 4. Verbatim Surveyors’ Descriptions of Redlined Areas of Oakland, California⁸⁷

- “Odors and noises from local industries. Infiltration of colored and Orientals. Predominance of older, cheap cottages. Zoned for industry.”
- “Odors from factories; infiltration of Orientals and colored.”
- “Adjoining industrial area with attendant odors, smoke, etc.”
- “Nearest to the industries, thereby being mainly occupied by wage earning families”

The work of historians can explain how and why current conditions came to be. Winling feels strongly about the epistemological value of the work of historians. Particularly through their archival work, historians view the ways in

which people expose their raw motivations. Moreover, “if these conditions were actively created, there can be active efforts to dismantle them.” For Winling, one impetus for his interest in this work was reading *Dumping in Dixie*, Bullard’s pioneering book, and pondering how he could use his historian craft to assist such endeavors.⁸⁸ This provides context for why environmental sociologist Dorceta Taylor became a student of environmental history to answer the question of why people of color live so pervasively in communities with hazardous facilities in them or close to them. Her findings are published in her book *Toxic Communities: Environmental Racism, Industrial Pollution, and Residential Mobility*.⁸⁹

To bring this discussion of redlining, systemic racism, and EJ full circle to the realm of environmental decision-making, there is now evidence of a relationship between social indicators and environmental health outcomes. Specifically, Morello-Frosch’s 2006 study demonstrated a correlation between indicators of residential segregation and estimated lifetime cancer risk from ambient air toxics.⁹⁰ As Figure 6 illustrates, this is true for all population groups as well as for the municipality as a whole.

Other studies cited earlier show correlations between redlined areas and current environmental and health conditions, and more to come will likely demonstrate this relationship. Such studies raise the question of how social factors can affect the action or impact of environmental stressors.⁹¹ I believe that this may be an important area for

85. Robert K. Nelson, *Mapping Inequality: There Were No Dog Whistles, the Racism Was Loud and Clear*, NAT’L COMMUNITY REINVESTMENT COALITION, Sept. 10, 2020, <https://nrcr.org/mapping-inequality-there-were-no-dog-whistles-the-racism-was-loud-and-clear/>.

86. University of Richmond Digital Scholarship Laboratory, *supra* note 74.

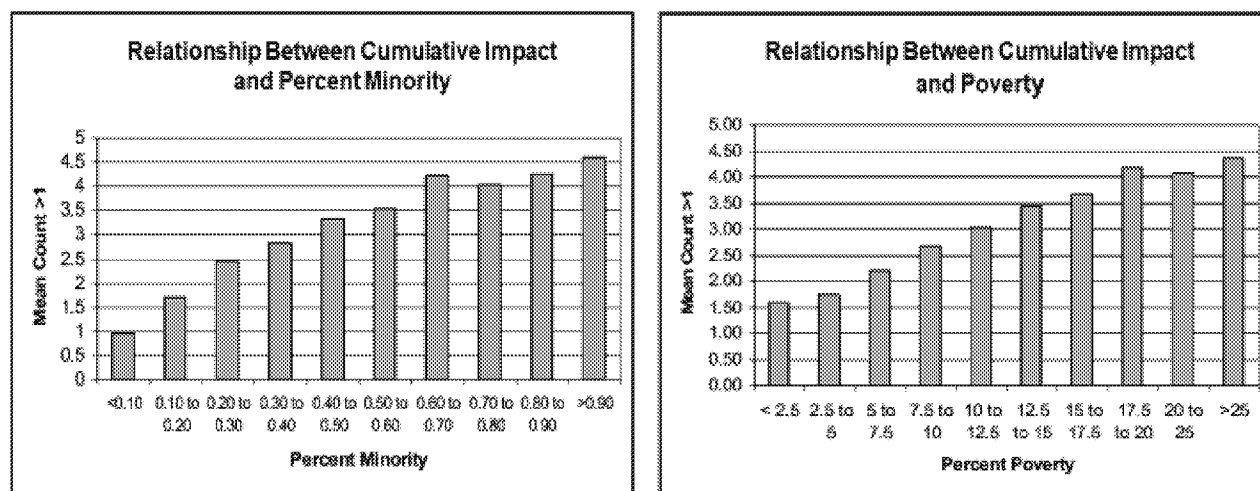
87. University of Richmond Digital Scholarship Laboratory, *supra* note 74.

88. Telephone Interview with Robert Nelson and LaDale Winling (Sept. 25, 2020).

89. DORCETA TAYLOR, *TOXIC COMMUNITIES: ENVIRONMENTAL RACISM, INDUSTRIAL POLLUTION, AND RESIDENTIAL MOBILITY* (2014).

90. This uses dissimilarity indexes, which track the extent to which populations are segregated from each other. See Morello-Frosch & Jesdale, *supra* note 47.

91. See also Michelle L. Bell & Francesca Dominici, *Effect Modification by Community Characteristics on the Short-Term Effects of Ozone Exposure and Mortality in 98 U.S. Communities*, 167 AM. J. EPIDEMIOLOGY 986 (2008).

Figure 7. Cumulative Impacts in New Jersey

Source: New Jersey DEP

future research. A tantalizing question is whether this area of environmental effects modification by social factors will prove to be an area relevant for regulatory consideration. If so, it behooves EJ researchers to focus on it as an important area in future EJ research agendas.

As the evidence of disproportionate impacts and their roots in past policies and practices explicitly aimed at discriminating on the basis of race and class becomes ever clearer, there is a growing expectation that government agencies go beyond symbolic politics and rhetorical platitudes about their professed goal of taking EJ seriously. The day may soon be upon us when the idea of holding one or two public meetings, doing cursory pro forma analyses, or smugly stating that “EJ needs to wait its turn” among the myriad of more important issues on the table is not acceptable. For example, in the recent Union Hill compressor station case (*Friends of Buckingham County v. State Air Pollution Control Board*), the U.S. Court of Appeals for the Fourth Circuit opined that EJ is not a “box to be checked” exercise.⁹²

Even before the national reckoning with systemic racism, there existed intensifying public expectation that government act to address disparities generally, and environmental disparities specifically, in a meaningful way. New EJ legislation at the state level provides a glimpse of this. I discussed earlier the impact of EJ in state laws focused on resource allocation for disproportionately impacted areas. Consideration of disproportionate impacts in the critical upstream processes of land use planning is augured by California’s S.B. 1000 law, whose implementation will definitely benefit by incorporation of the systemic racism lens.

Even though the connection may not have been made explicitly, the ingredients of a linkage to systemic racism were evident during the heated debate in California around emissions trading for greenhouse gas reduction legislation.

Emissions trading was a policy that produced great benefits for the environment as a whole but concentrated pollution, particularly in the form of noxious co-pollutants, in people-of-color and low-income areas. This debate resulted in the landmark Assembly Bill (A.B.) 617 legislation that established the basis for the Community Air Protection Program. Among other things, the program made paradigmatic shifts in air protection from large geographic to neighborhood scales along with power sharing and joint planning. The scale of this program is unprecedented. Since 2017, the California Legislature has allocated \$704 million to support A.B. 617.⁹³

I conclude this section with a discussion of the historic New Jersey legislation. This is a case example of how transformative progress never comes easily or quickly. It took some 15 years to bring this landmark legislation about. Advocacy to address cumulative impacts began with EJ advocates in New Jersey, including Baptista and Nicky Sheats, known widely as “Dr. Cumulative Impacts” for his many years of tenacious advocacy around the issue.⁹⁴ In 2009, the Cumulative Impacts Subcommittee of the Environmental Justice Advisory Committee to the New Jersey Department of Environmental Protection (NJDEP) issued the report “Strategies for Addressing Cumulative Impacts in Environmental Justice Communities.”⁹⁵ NJDEP issued a preliminary screening methodology in 2009 that showed the correlation between cumulative impacts and two indicators (i.e., percent minority and percent poverty), as shown in Figure 7.⁹⁶ Plans to continue cumulative impact

92. *Friends of Buckingham v. State Air Pollution Control Bd.*, No. 19-1152 (4th Cir. 2020), available at <https://www.courthousenews.com/wp-content/uploads/2020/01/pipeline-station.pdf>.

93. See California Air Resources Board, *Community Air Protection Incentives: About*, <https://ww2.arb.ca.gov/our-work/programs/community-air-protection-incentives/about> (last visited Jan. 6, 2021).

94. Cecilia Martinez, Healthy Communities: Cumulative Impacts and Environmental Justice, Midwest EJ Network Webinar (Oct. 8, 2020); see also Brianna Baker, *He Helped Pass a Historic EJ Bill. But He’s Just Getting Started*, GRIST, Oct. 14, 2020, <https://grist.org/fix/he-helped-pass-a-historic-environmental-justice-bill-but-hes-just-getting-started/>.

95. See ENVIRONMENTAL JUSTICE ADVISORY COUNCIL, NJDEP, *supra* note 31.

96. See NJDEP, A PRELIMINARY SCREENING METHOD TO ESTIMATE CUMULATIVE ENVIRONMENTAL IMPACTS (2009), http://www.state.nj.us/dep/ej/docs/ej_screeningmethods20091222.pdf. The nine indicators used were Na-

tool development ended abruptly with the change in New Jersey's political administration.

From the beginning, there were attempts to advance the concept through legislation. Work by EJ groups, both from New Jersey and nationally, informed Sen. Cory Booker's (D-N.J.) EJ Bill in 2017.⁹⁷ This bill, which included cumulative impacts as a central element, gave impetus to New Jersey's efforts. State Sen. Troy Singleton initiated the legislative process when he introduced S. 232. Key factors in the passage of S. 232/A.B. 2212 were the ability of communities and EJ advocates to interact with legislators directly, along with the confluence of COVID-19 and the Black Lives Matter movement. They represented the coming together of the grassroots EJ movement with the Black Lives Matter movement, outrage at the disproportionate impacts of COVID-19, and the national reckoning with systemic racism.

These propelled the EJ issue to a much broader field of play in a way that heretofore never existed. New Jersey Gov. Phil Murphy clearly linked his support for S. 232/A.B. 2212 to the imperative to respond to the systemic inequities laid bare by COVID-19. A *Politico* article, entitled "How a Long-Stalled 'Holy Grail' Environmental Justice Bill Found Its Moment in New Jersey," stated: "The bill, more than a decade in the making, advanced in both chambers of the state Legislature during a fraught political climate that has laid bare the connection between historically racist government policies and current environmental and public health inequities."⁹⁸

V. Conclusion

At the start of this Article, I made a reference to beginning a transition toward a *second generation of EJ practice*. The Article has posited a working definition of "disproportionate impacts," a framework for operationalizing it within government programs, and a line of sight for connecting to historical trends and decisions that shape current disproportionate environmental outcomes. These elements are meant to lay a foundation for a paradigm shift in EJ practice in government agencies that operationalizes the concept of disproportionate impacts through better analytical and policy tools. It also recognizes that new statutory and policy mandates are emerging.

This Article is part of my crusade to overcome the current stagnation of EJ practice within government agencies and build the capacity of the EJ practitioner to go beyond defaulting to community meetings as the sum total of what

EJ integration means. I reiterate that this will not be accomplished by persons in government alone. As historical experience has shown, truly transformative EJ developments have resulted from the concerted efforts of communities, academicians, and government personnel.

As the Article shows, operationalizing the concept of disproportionate impacts in government programs is already well underway, and many replicable examples now exist. With some intentionality, efforts to operationalize the disproportionate impacts concept can easily be amplified. At the same time, maturing a second generation of EJ practice will require thoughtful strategies and initiatives. Some key areas requiring further development are:

- Identifying good model quantitative studies and EJ analyses, including an understanding of what makes them good studies and analyses. An important consideration is their nexus with the decisions being made. The discussion earlier on characterizing disproportionate impacts sets the stage for this work.
- Building out the spectrum of EJ integration approaches, including more precise articulation of what constitutes significant impacts within these analyses, the type, scale, and level of quantification needed, and the emerging statutory and/or policy mandates to support them. This also involves going beyond merely a risk management and risk assessment paradigm. The discussion on the spectrum of EJ integration approaches and their statutory, policy, and analytical requirements can provide a guide.
- Expanding EJ research beyond merely seeking to identify the existence of disproportionate impacts, to areas that can make this phenomenon policy-relevant. This needs to be informed by the needs determined by analytical needs defined by the spectrum of EJ integration approaches.
- Elucidating the historical trends and decisions that set into place the structural inequities, understanding their implications for current environmental conditions, and formulating public policy frameworks to address them. The entrance of new disciplines, such as historians, into the EJ arena is most heartening. Moreover, this includes not merely research but education and authentic public discourse.

As noted earlier, this generational paradigm shift in the practice of EJ will involve collaborations between communities, academia, and government. We are already beginning to see its elements take shape and the considerable differences they are making for disproportionately impacted communities. As a person who started to work on the issue before it had a name, I firmly believe that we are finally seeing EJ's coming of age. Indeed, we owe a great debt of gratitude to the many unsung heroes within

tional Air Toxics Assessment (NATA) Cancer Risk; NATA Diesel; NJDEP Benzene Estimate; Traffic: All; Traffic: Trucks; Density of Major Regulated Sites; Density of Known Contaminated Sites; Density of Dry Cleaners; and Density of Junkyards.

97. See Press Release, Office of Sen. Cory Booker, Booker Announces Landmark Environmental Justice Bill (Oct. 23, 2017), <https://www.booker.senate.gov/news/press/booker-announces-landmark-environmental-justice-bill>.

98. See Samantha Maldonado, *How a Long-Stalled "Holy Grail" Environmental Justice Bill Found Its Moment in New Jersey*, *POLITICO*, Aug. 27, 2020, <https://www.politico.com/states/new-jersey/story/2020/08/27/new-jersey-legislature-sends-groundbreaking-environmental-justice-bill-to-governors-desk-1313030>.

both the EJ movement and government agencies who have labored quietly, tenaciously, and anonymously over many decades.

I began this Article by talking about the transformational importance of being able to define, articulate, characterize, and operationalize the concept of disproportionate impacts. At a moment when the nation is begin-

ning to confront the issue of systemic racism within the environmental arena, I hope I have been able to impart a glimpse of the second-generation opportunities that fully operationalizing and integrating the concept offer for making a profound difference in the lives of our nation's most environmentally burdened, underserved, and vulnerable communities.